AMENDMENTS TO THE CLAIMS

1 1. (Currently Amended) A method for re-distributing, over a cluster of one or more active

2 nodes, management of locks on shared resources, the method comprising:

3 establishing a first master node as master for one or more resources in response to a

4 hash value range being mapped to said first master node, wherein the hash value

5 range is associated with said one or more resources by a hash function;

6 transferring responsibility for mastering said one or more resources from the first

7 master node to a second master node during a transfer time interval;

8 during the transfer time interval, a receiving node receiving new lock requests, wherein

9 said receiving node is one of the first master node and the second master node;-

10 and

11 during the transfer time interval, processing the new lock requests;

12 re-mapping the hash value range to the second master node at the first master node; and

13 sending initial lock information resident on the first master node at a start of the

14 transfer time interval to the second master node;

15 wherein transfer of locks from the first master node to the second master node begins at

16 a first point in time;

17 wherein the transfer of locks from the first master node to the second master node ends

18 at a second point in time;

19 wherein the transfer time interval begins at the first point in time and ends at the second

20 point in time; and

21 wherein other active nodes in the cluster acknowledge that said other active nodes have

22 been informed that said second master node is assuming responsibility for

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23   mastering said one or more resources.

1   2.   (Canceled)

1   3.   (Currently Amended) The method of ~~Claim 2~~Claim 1, said transferring further

2   comprising, in response to receiving acknowledgements from all active nodes in the

3   cluster by a full acknowledgement time, sending updated lock information resident on

4   the first master node at said full acknowledgment time to the second master node,

5   wherein the transfer time interval ends at an update time of said sending updated lock

6   information.

1   4.   (Original) The method of Claim 1, said transferring further comprising:

2   receiving initial lock information at the second master node, said initial lock

3   information resident on the first master node at a start of the transfer time

4   interval;

5   re-mapping the hash value range to the second master node at the second master node;

6   and

7   sending a broadcast message to all other nodes in the cluster that the second master

8   node is a new master node for resources associated with the hash value range.

1   5.   (Previously Presented) A method for re-distributing, over a cluster of one or more

2   active nodes, management of locks on shared resources, the method comprising:

3   establishing a first master node as master for one or more resources in response to a

4   hash value range being mapped to said first master node, wherein the hash value

5   range is associated with said one or more resources by a hash function;

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6   transferring responsibility for mastering said one or more resources from the first

7   master node to a second master node during a transfer time interval; and

8   processing lock requests received at a receiving node of the first master node and the

9   second master node by the receiving node during the transfer time interval, said

10   transferring further comprising:

11   receiving a broadcast message at a set of nodes in the cluster, the set of nodes including

12   all nodes in the cluster except the first master node and the second master node;

13   wherein the broadcast message indicates that the second master node is a new master

14   node for resources associated with the hash value range;

15   re-mapping the hash value range to the second master node at each node in said set of

16   nodes in the cluster;

17   sending an acknowledgment to the first master node from each node in said set of

18   nodes in response to the broadcast message, said acknowledgement indicating

19   that said each node in said set of nodes has been informed that said second

20   master node is assuming responsibility for mastering said one or more

21   resources; and

22   after sending the acknowledgement, said each node in said set of nodes sending

23   subsequent lock requests for resources associated with the hash value range to

24   the second master node.

1   5. (Original) The method of Claim 4, said transferring further comprising receiving

2   updated lock information from the first master node at the second master node wherein

3   the transfer time interval ends at an update time of said receiving updated lock

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4   information.

1   7.   (Original) The method of Claim 6, wherein:

2   lock requests include a sequence number; and

3   said method further comprises deleting stale requests among the updated lock

4   information received at the second master node, the stale requests indicated by

5   sequence numbers earlier than sequence numbers in lock requests already

6   processed on the second master node.

1   8-14.   (Canceled).

1   15.   (Original) A computer-readable medium bearing instructions for re-distributing, over a

2   cluster of one or more active nodes, management of locks on shared resources from a

3   first master node to a second master node during a transfer time interval, the

4   instructions arranged to cause one or more processors on the first master node to

5   perform:

6   re-mapping a hash value range initially assigned to the first master node to the second

7   master node, wherein the hash value range is associated with one or more of the

8   shared resources by a hash function;

9   sending initial lock information resident on the first master node at a start of the

10   transfer time interval to the second master node;

11   receiving acknowledgments at the first master node from other active nodes in the

12   cluster; said acknowledgements indicating that said other active nodes have

13   been informed that said second master node is assuming responsibility for

14   mastering said one or more resources.

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1   16.   (Original) The computer-readable medium of Claim 15, said instructions further

2   causing the one or more processors to perform, in response to receiving

3   acknowledgements from all active nodes in the cluster by a full acknowledgement time,

4   sending updated lock information resident on the first master node at said full

5   acknowledgment time to the second master node, wherein the transfer time interval

6   ends at an update time of said sending updated lock information.

1   17.   (Original) The computer-readable medium of Claim 15, said instructions further

2   causing the one or more processors to perform processing lock requests received during

3   the transfer time interval until receiving acknowledgements from all active nodes in the

4   cluster.

1   18.   (Currently Amended) A computer-readable medium bearing instructions for re-

2   distributing, over a cluster of one or more active nodes, management of locks on shared

3   resources from a first master node to a second master node during a transfer time

4   interval, the instructions arranged to cause one or more processors on the second master

5   node to perform:

6   receiving initial lock information resident on the first master node at a start of the

7   transfer time interval;

8   re-mapping a hash value range initially assigned to the first master node to the second

9   master node, wherein the hash value range is associated with one or more of the

10   shared resources by a hash function; and

11   sending a broadcast message to all other nodes in the cluster that the second master

12   node is a new master node for resources associated with the hash value range;

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13 wherein other active nodes in the cluster acknowledge that said other active nodes have

14 been informed that said second master node is assuming responsibility for

15 mastering said one or more resources.

1 19. (Original) The computer-readable medium of Claim 18, said instructions further

2 causing the one or more processors to perform receiving updated lock information from

3 the first master node wherein the transfer time interval ends at an update time of said

4 receiving updated lock information.

1 20. (Original) The computer-readable medium of Claim 19, wherein:

2 lock requests include a sequence number; and

3 said instructions further cause the one or more processors to perform deleting stale

4 requests among the updated lock information received at the second master

5 node, the stale requests indicated by sequence numbers earlier than sequence

6 numbers in lock requests already processed on the second master node.

1 21. (Original) A computer-readable medium bearing instructions for re-distributing, over a

2 cluster of one or more active nodes, management of locks on shared resources from a

3 first master node to a second master node during a transfer time interval, the instructions

4 arranged to cause one or more processors on a third node to perform:

5 receiving a broadcast message indicating that the second master node is a new master

6 node for resources associated with a hash value range, wherein the hash value

7 range is associated with one or more of the shared resources by a hash function;

8 re-mapping the hash value range to the second master node;

9 sending an acknowledgment to the first master node in response to the broadcast

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10   message, said acknowledgement indicating that said third node has been informed

11   that said second master node is assuming responsibility for mastering said one or

12   more resources; and

13   after said sending an acknowledgment, sending subsequent lock requests for the one or

14   more of the shared resources to the second master node.

1   22.   (Previously Presented) A computer-readable medium carrying one or more sequences of

2   instructions which, when executed by one or more processors, causes the one or more

3   processors to perform the method recited in Claim 1.

1   23.   (Previously Presented) A computer-readable medium carrying one or more sequences of

2   instructions which, when executed by one or more processors, causes the one or more

3   processors to perform the method recited in Claim 2.

1   24.   (Previously Presented) A computer-readable medium carrying one or more sequences of

2   instructions which, when executed by one or more processors, causes the one or more

3   processors to perform the method recited in Claim 3.

1   25.   (Previously Presented) A computer-readable medium carrying one or more sequences of

2   instructions which, when executed by one or more processors, causes the one or more

3   processors to perform the method recited in Claim 4.

1   26.   (Previously Presented) A computer-readable medium carrying one or more sequences of

2   instructions which, when executed by one or more processors, causes the one or more

3   processors to perform the method recited in Claim 5.

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1 27. (Previously Presented) A computer-readable medium carrying one or more sequences of

2 instructions which, when executed by one or more processors, causes the one or more

3 processors to perform the method recited in Claim 6.

1 28. (Previously Presented) A computer-readable medium carrying one or more sequences of

2 instructions which, when executed by one or more processors, causes the one or more

3 processors to perform the method recited in Claim 7.

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